

## Association between Quality of sleep with Body Mass Index and physical activity in medical university student

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### Abstract:

**Objectives:** Quality of sleep in relationship of Body mass index (BMI) as index of obesity and overweight prevalence and physical activity among students were studied.

**Methods:** A cross-sectional study of 229 students (61 males and 168 females) from Qazvin University of Medical Sciences was carried out. Data were collected by a web-based questionnaire. The questionnaires included the following parts: Demographic characteristics, weight, height, Rapid Assessment Physical Activity (RAPA), sleep quality index Pittsburgh (PSQI). SPSS 16 software was used for statistical analyses.

**Results:** Out of 385 sampled students, 299 participated in the study and filled out the web-based questionnaire (59.48% response rate). The mean and standard deviation of the participants' age was  $27.68 \pm 5.54$  (18-40 years old age range). The mean of sleep quality index Pittsburgh (PSQI) was  $4.19 \pm 1.19$  (min: 1, max: 13.5). 67.2% students had good sleep (gs) and 32.8% poor sleep (ps) in both gender (females gs: 66.1%, ps: 33.9 & males gs: 70.5, ps: 29.5). The mean of Body Mass index (BMI) was  $23.34 \pm 4.37$  (females  $22.54 \pm 3.34$ , males  $25.53 \pm 5.90$ ). Subjects were classified based on two groups first one BMI  $>25$  as overweight and obesity and the second BMI  $< 25$ . Pearson's correlation between the two groups and sleep quality index were analyzed ( $P = 0.013$ ) in both gender (22.5% women, 39.34% men had BMI  $>25$  and poor sleep). Physical activity and sleep quality index showed significant relationship among men but not women ( $P=0.022$ ). There were not significant relationships between PSQI with sex and marital status.

**Discussion:** Previous evidence indicated that sleep problems increase the risk of cardiovascular disease (CVD) and diabetes mellitus which could explain with overweight and obesity. Sleep disturbances, rather than sleep duration, predicted overweight among young adults. Although a study showed no significant association between BMI and poor quality of sleep but had significant association with depression among first year college student. Physical activity also has a positive effect on sleep pattern, its benefits may go beyond simple weight control also our results indicated similar result just in men but not in women.

**Conclusion:** In this study the impact of sleep disorders on overweight and obesity indicated positive relationship which may be reason of acute disease in their future life.

**Keywords:** Quality of sleep, Obesity, Physical Activity, body mass index, BMI

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